ITS PROJECT APPLICATION FORM
FY 2009-2013 TIP

General Instructions: This form is to be used to request federal Congestion Mitigation and Air Quality (CMAQ) funding available through the Maricopa Association of Governments for Intelligent Transportation System (ITS) projects to be included in the FY 2009-2013 MAG Transportation Improvement Program. Currently funding is available only for **FY 2013**.

Separate application forms are available for bicycle, pedestrian, air quality, and transit projects. Freeway, street and rail transit projects will be programmed in a separate process.

This application form includes:

- Part A: Project Description and TIP Listing Information. In Part A, the applicant provides the minimum information necessary to list a project in the TIP as required by applicable federal regulations and general descriptive information necessary for MAG staff and technical committees to evaluate the project.

- Part B: Project Congestion Management System (CMS) and Congestion Mitigation Air Quality (CMAQ) Data: In Part B, the applicant provides data necessary for MAG staff to calculate CMS and CMAQ scores for projects.

- Part C: MAG Technical Committee Additional Information. This section is used to collect information requested by the MAG ITS Committee. The MAG ITS Committee is charged with evaluating and recommending ITS projects for federal funding. **PLEASE NOTE: Part C is only available electronically.** It is available at: http://www.mag.maricopa.gov/project.cms?item=413, or you can contact Leo Luo: lluo@mag.maricopa.gov, and he will send you the electronic file.

Deadlines and Transmittal Instructions: All sections should be completed and returned to MAG Offices by **5:00 p.m. September 7, 2007.** Please e-mail Judy Tadlock at MAG, jtadlock@mag.maricopa.gov this application (Part A & B). Part C is only available electronically as noted above. Please e-mail Leo Luo the completed Part C, excel file to lluo@mag.maricopa.gov. The mailing address and FAX number for the MAG offices is:

ATTN: Judy Tadlock
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003
FAX Number: (602) 254-6490

Electronic Download Information: A downloadable version of these forms in Microsoft Word is available on the MAG website at http://www.mag.maricopa.gov/project.cms?item=413. If requested, MAG staff will also provide these forms via e-mail or FAX.

MAG Contact Information: If you have any questions, please contact Stephen Tate or Eileen Yazzie at (602) 254-6300 or at state@mag.maricopa.gov.

Agency Contact Information: Please complete the following contact information for each project, so that we may contact you should we need additional information.

1.	Name of the Agency Contact for the Project Request: **Jeffrey Jenq**	2.	Telephone: **480-644-5187**
3.	E-mail **Jeff.Jenq@cityofmesa.org**	4.	Date: 09-04-2007

ITS PROJECT APPLICATION FORM – FY 2009-2013 TIP
Part A: Project TIP Listing Information and Description

Section One: TIP Listing Information.

Please complete the following information for all projects. If the project is accepted for MAG federal funding, the project information provided in this section will appear in the TIP as provided by the applicant

1. Sponsoring Agency Name: **City of Mesa**	2. Year (Please check box): **X** FY 2013
3. Project Location (The project limits if applicable): **West side mid-city (initial deployment)** **West city limits to Country Club, University to Broadway – but project has city-wide potential**	
4. Type of Work (Description of the work to be performed): **Upgrade central traffic control system software to accommodate a lite version of adaptive control**	
5. Amount of Federal Funds Requested (This amount cannot exceed **70.0** percent of the total cost of the project.): **$350,000**	6. Type of Federal Funds Requested (Please check box.): ☐ MAG STP **X** CMAQ
7. Amount of Local Funds to be Used (This amount cannot be less than **30.0** percent of the total cost of the project.): **$150,000**	8. Type of Local Funds to be Used: (Please check only one box.): **X** HURF ☐ Impact Fees ☐ General Fund ☐ Bond Proceeds ☐ Sales Tax ☐ Private ☐ Property Tax ☐ Other, Please specify: _____
9. Total Cost of the Project: (This amount must equal the sum of the federal and local amounts requested): **$500,000**	
10. Please attach a map, drawing, photograph, plans or other graphic showing the location of the project. If no graphic is available or it is not feasible to provide one, please indicate this fact in the space below. **See MS Word Document "Part A - Project description - City of Mesa - System software upgrade FY2013.doc" for additional project information and a map of project location.**	

ITS PROJECT APPLICATION FORM – FY 2009-2013 TIP
Part B: CMS and CMAQ Data

General Instructions: In Part B, the applicant provides data necessary for MAG staff to calculate Congestion Management System (CMS) and CMAQ scores for projects.

Section One: Congestion Management System and CMAQ Data

Please complete the following information for all street projects. The information used in this section is used to calculate CMS scores.

1. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type: **30,000**	2. Name of the Roadway Section Used for the ADT Estimate: **Dobson –** **Main to Broadway**	3. Type of Facility to be Improved (Check only one box): ☐ Arterial > 4 legs (e.g. Grand) X Arterial Street ☐ Collector Street ☐ Other
4. Number of **Through** Lanes Currently on the Facility Prior to Project Completion (Do not include right, left or center turn lanes): **4**	5. Number of **Through** Lanes on the Facility After the Project is Completed (Do not include auxiliary lanes): **4**	6. Length of the Facility (in miles): **12**
7. Township Coordinate of the Midpoint of the Facility: **T1N**	8 Range Coordinate of the Midpoint of the Facility: **R5E**	9. Section Coordinate of the Midpoint of the Facility: **19,20, 21**

10. If the project improves traffic signal coordination, please do the following:

a. Enter the pre-improvement (current) traffic speed of the traffic corridor: **40 MPH**

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase In Speed
☐	Non-interconnected, pre-timed signals with old timing plan	Advanced computer-based control	25.0 percent
☐	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
☐	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
☐	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
X	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
☐	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

ITS PROJECT APPLICATION FORM – FY 2009-2013 TIP
Part B: CMS and CMAQ Data

11. Other Project Information: (Check as many as are applicable):

X Includes Traffic Signal Improvements for a Single Agency
☐ Includes Traffic Signal Improvements that Apply to More than One Agency
☐ Includes FMS Improvements
☐ The Project Conforms to Local Land Use Plans
☐ The facility is on the adopted MAG Roads of Regional Significance Network
☐ Adds Traffic Signals that increase pedestrian crossing time for seniors

12 Management System (Please check only one box)

X Congestion Management System (CMS)
☐ Bridge Management System (BMS)
☐ Pavement Management System (PMS)
☐ Public Transportation Management System (PTMS)
☐ Safety Management System (SMS)
☐ Intermodal Management System (IMS)
☐ Other

13. Please identify the priority the agency places on this project. If for example, the agency is submitting three requests for ITS projects and this is the agency's highest priority, then a "1" should be entered. Each priority entered should be unique – e.g. no two requests for ITS projects should have the same priority.

2

Part C: MAG Technical Committee Additional Information

This section is used to collect information requested by the MAG ITS Committee. The MAG ITS Committee is charged with evaluating and recommending ITS projects for federal funding. **Part C is only available electronically. It is available at: http://www.mag.maricopa.gov/project.cms?item=413, or you can contact Leo Luo: lluo@mag.maricopa.gov, and he will send you the electronic file.**

Contact Information

Please contact Sarath Joshua or Leo Luo at (602) 254-6300 or sjoshua@mag.maricopa.gov, lluo@mag.maricopa.gov for additional information or questions.

FY 2009 - 2013 TIP - Programming 2013
MAG ITS Project Data Form

Please enter project data ONLY in highlighted cells, save the file with the lead agency name in it - ie. Mesa ITS Projects.xls

Submit this Excel workbook to MAG via email to: LLUO@MAG.MARICOPA.GOV

Please use one worksheet per project, with the tab at the bottom indicating agency priority

Links to various websites are provided for additional information and help

The worksheet titled "Example" shows an example on how to enter Data in the highlighted areas. If errors are detected alerts will pop-up in red text.

The worksheet titled "HELP" shows how to figure out your project's ITS Subsystems & Architecture Flows

Please enter required information in highlighted cells

A. Project Title & Sponsor

Lead Agency	City of Mesa
Other Partnering Agencies	
ITS Project Title:	Mesa System Software Upgrade FY2013

B. Project Goals & Objectives

Project Goals:

Upgrading the ICONS central traffic management system software to allow state-of-the-art technologies to be utilized. Implementing new technologies such as transition manager, run-time refiner, and time-of-day tuner will be sought. Managing and controlling existing data such as detector information, offset and split information, ring structure, and phase timings.

Objectives:

A major benefit that can be achieved through advanced congestion management tools is reduction of travel time. Better arterial progression results in reduced traffic delay, lowered risks for accidents, decreased fuel consumptions, and improved air quality. Upgraded central software will improve overall system performance.

C. Define ITS Subsystems, Achitecture Flows, Communications & Arterial ITS Applications

SELECT ITS Subsystems: http://www.iteris.com/itsarch/html/entity/pae	Yes or No
Center Subsystem	Yes
Traveler Subsystem	Yes
Field/Roadside Subsystem	Yes
Vehicle Subsystem	No
Communications Subsystem	No

Architecture Flows (Information flows among four subsystems: Traveler, Center, Roadside and Vehicle Subsystems)

From Subsystem	To Subsystem	Information flow
Center	Roadside	Signal timing data
Roadside	Center	Detector data
Center	Traveler	Roadway conditions

Communications: Required communications medium for data sharing with other agencies: (if applicable)

From agency	To agency	data flow	Medium	Existing?	Future (year) mm/yyyy	Check Date with Project Schedule
Mesa	Regional partners	Signal status and historical data	Fiber	Yes		

Arterial ITS applications	**Relevant Applications (ENTER: Yes or No)**	**Applicable ITS User Services Addressed http://www.iteris.com/itsarch/html/user/userserv.htm**	**Applicable ITS Market Packages http://www.iteris.com/itsarch/html/mp/mpindex.htm**
1. Traffic Management	Yes	1.6, 1.7	ATMS01, ATMS03
2. Transit Operations Support	Yes	1.6	ATMS01
3. Interagency Data Sharing and Control	Yes	1.6, 1.7	ATMS01,ATMS03
4. Integrated Traveler Information	Yes	1.6, 1.7	ATMS01, ATMS03
5. Archived Data Management	Yes	1.6	ATMS01, ATMS03
6. Incident Management	Yes	1.6	ATMS01, ATMS03
7. Freeway-Arterial	Yes	1.6	ATMS01, ATMS03

D. Project Budget

(1) The total of all federal funds requested for ITS projects by any MAG member agency should not exceed $1 million per program year per agency.

(2) Joint projects that involve 3 or more agencies may exceed $1m in federal cost. Federal cost of each agency's component will not be counted against the $1m limit.

(3) There is no limit on the number of projects that may be submitted by an agency, but each project requires the 30 percent local cost match

(4) For multijurisdictional projects, the federal and local shares of each partnering agency must be shown below.

	Federal Cost	**Local Match (min 30%)**	**Total Cost**
Lead Agency	$350,000.00	$150,000.00	**$500,000.00**
Partnering Agency#1			**$0.00**
Partnering Agency#2			**$0.00**
Partnering Agency#3			**$0.00**
Total	$350,000.00	$150,000.00	$500,000.00
Cost percentage	**70.0%**	**30.0%**	

Note: Each participating agency should provide at least 30% local match for its share of the total cost

E. Project Schedule

The following project milestones and schedules are based on a typical project procurement process. Please select applicable milestones. Some ITS projects may follow an abbreviated process. ENTER estimated time for such a process

Standard Project Milestones	Default Schedule for Process	Applicable Milestones (ENTER - Yes OR No)	Estimated Time to Milestone (ENTER #Months)	Estimated Date (Enter> mm/yyyy)
Apply for ADOT project number				Nov-2013
Receipt of ADOT project number	Jan-2014	Yes	2	Jan-2014
Initial DCR	Feb-2014	Yes	4	Feb-2014
Final DCR	Mar-2014	Yes	5	Mar-2014
30% Preliminary Plans, Cost Estimate and Report	May-2014	Yes	7	May-2014
60% Preliminary Plans, Cost Estimate and Report	Jul-2014	Yes	9	Jul-2014
Final Preliminary Plans, Cost Estimate and Report	Sep-2014	Yes	11	Oct-2014
Environmental Clearance	Jul-2014	No	9	NA
Utility Clearance	Aug-2014	No	10	NA
Right-of-Way Clearance	May-2014	No	10	NA
Approval of IGA	Nov-2014	Yes	14	Jan-2015
Obligation authority of Federal funds	Dec-2014	Yes	15	Jan-2015
Advertised Date	Feb-2015	Yes	18	Apr-2015
Final Deployment	Aug-2015	Yes	24	Oct-2015

F. System Maintenance and Operations

Current staff resources available for ITS operations at the local agency (FTEs)	11
Additional staff resources required for fully utilizing features added by project (FTEs)	0
Estimated current annual ITS operations & maintenance budget	$1,500,000
Estimated additional annual operations & maintenance funds required for features added by project	$0
Estimated DATE from when required additional O&M funds will be available	

Other comments:

G. Systems Engineering Analysis Requirement

Commitment to address the federal requirement for Systems Engineering Analysis:
Agency's intent to follow the process described in the 'V' diagram (See Appendix A of Arterial ITS Plan) during the project development process

The project sponsor or lead agency intends to incorporate the Systems Engineering Analysis in the scope of work for the project's Design Concept Report. The Systems Engineering Analysis will be carried out based on the document Systems Engineering for ITS published by FHWA in Janaury 2007. A guidelines document prepared by FHWA (AZ office) and MAG dated August 2006 is also available (both are posted at the MAG website).

Project Description: City of Mesa – System Software Upgrade FY2013

1. **A map of project location is attached (Figure 1).**

2. **Project description**

   Seventy percent of Mesa's existing traffic signals operate on the ICONS traffic management system, a systematic approach will result in the complete conversion from the older SONEX system by 2012.

   This project includes upgrading the ICONS central traffic management system software to allow state-of-the-art technologies to be utilized. The newer technologies such as transition manager, run-time refiner, and time-of-day tuner will be sought. Also the newer software supports managing and controlling existing data such as detector information, offset and split information, ring structure, and phase timings. The project supports evaluation of phase usage, trend analysis, and automatic adjustments over time.

3. **Why project should receive MAG federal funding**

   A major benefit that can be achieved through advanced congestion management tools is reduction of travel time. Better arterial progression results in reduced traffic delay, lowered risks for accidents, decreased fuel consumptions, and improved air quality. Upgraded central software will improve overall system performance.

4. **Multi-modal issues**

   The improved software allows system operators to adjust and improve bicycle and pedestrian timing. Improving the efficiency of the intersection timing through real time management, assists in the systems ability to accommodate transit vehicles with less interruption.

5. **Older adults needs**

   Generally, this project meets the needs of older adults by providing faster and more efficient central control that improves pedestrian and vehicular traffic conditions. This project also provides added capacity to easily incorporate future advancements in technology.

6. Cost breakdown

An estimate of construction cost based on the summary of quantities and recent bid prices was prepared based on the 60% design level.

Description	Quantity	Cost
Software		$300,000
Equipment		$100,000
Integration of Field Devices		$100,000
		$500,000

7. Schedule for obligating project

Kick Off Meeting	November	2013
Design Concept Report (DCR) and Environmental Clearance	March	2014
Preliminary Plans (30% Stage) And Preliminary Cost Estimate	April	2014
60% Stage Plans, Specs, and Estimate	June	2014
Submit 95% PS&E (Plans Specs and Estimate)	August	2014
Submit Final Plans (100% Complete)	October	2014
Job advertised (if all clearances on file and current)	November	2014

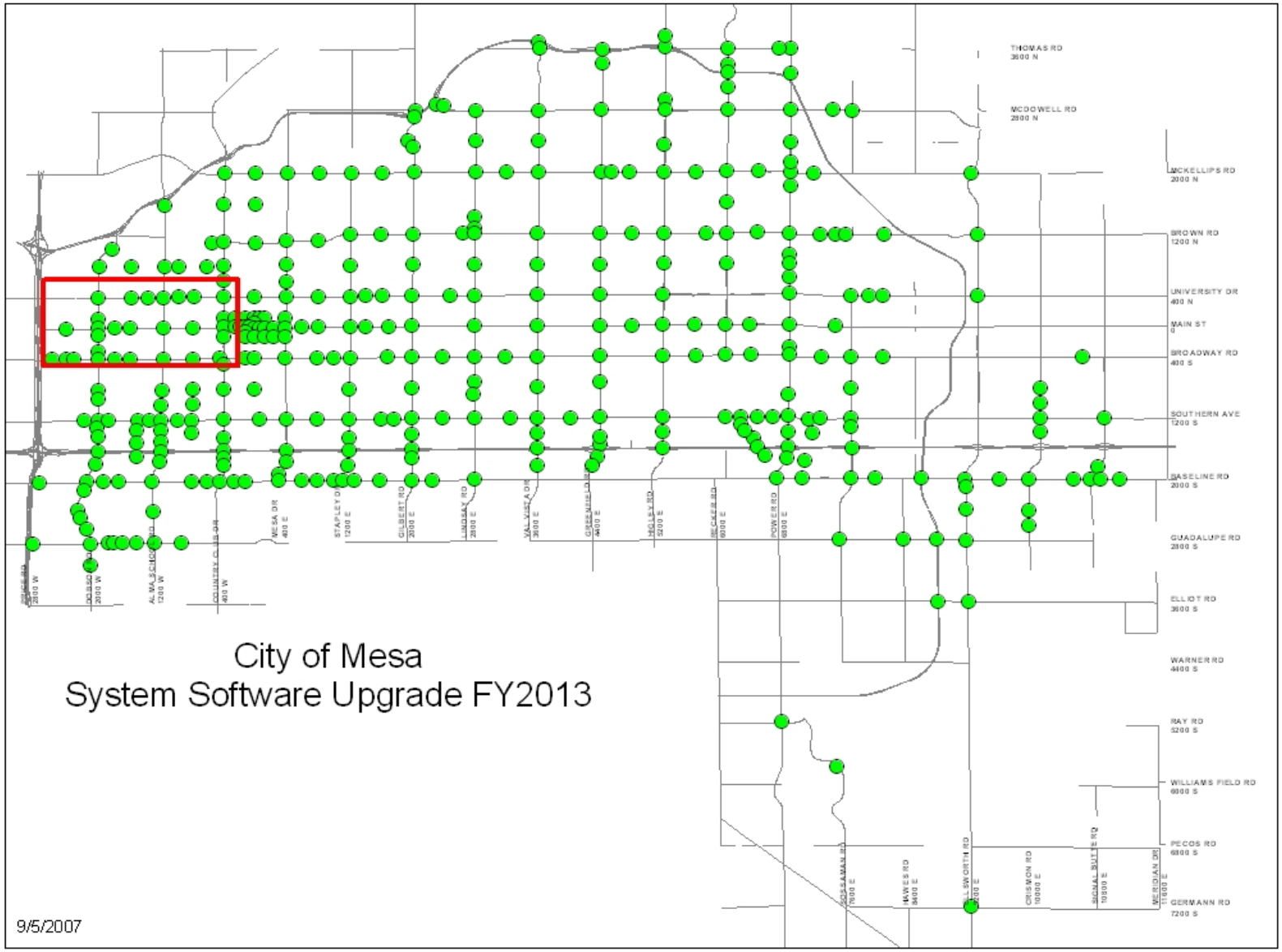

Figure 1. Proposed Project Location